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NOTICE OF ALLOWANCE AND FEE(S) DUE

38107 7590 10/07/2009

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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BRIARCLIFF MANOR, NY 10510

EXAMINER

AZARIAN, SEYED H

ART UNIT

PAPER NUMBER

2624

DATE MAILED: 10/07/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/598,421

08/29/2006

Thomas Kohler

PHDE040061US

4425

TITLE OF INVENTION: MOTION COMPENSATION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	01/07/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

38107 7590 10/07/2009

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Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,421	08/29/2006	Thomas Kohler	PHDE040061US	4425

TITLE OF INVENTION: MOTION COMPENSATION

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nonprovisional	NO	\$1510	\$300	\$0	\$1810	01/07/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
AZARIAN, SEYED H	2624	382-128000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 705 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 705 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/598,421	KOHLER ET AL.	
	Examiner	Art Unit	
	SEYED AZARIAN	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 8/29/2006 also telephone interview and fax inquiry filed on September 2, 2009.
2. ☒ The allowed claim(s) is/are 1-2 and 4-12 now renumbered as 1-11.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>8/19/06</u> 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
|--|---|

/SEYED AZARIAN/
Primary Examiner, Art Unit 2624

Drawings

1. The drawing filed on 8/29/2006 is accepted by the Examiner.

Response to Amendment

1. Based on applicant's amendment, also telephone interview and fax inquiry filed on September 2, 2009, with respect to cancellation of claim 3, and amended claims 1, 7, 9, 11 and 12, have been fully considered and are persuasive, upon further consideration, the 35 USC 101 rejection and rejection of prior art of record for claims 1-2 and 4-12, are hereby withdrawn.

The claims 1-2 and 4-12 now renumbered as 1-11 are allowed.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it must be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Applicants Attorney (Mr. Douglas B. McKnight, Reg No. 50,447), on September 2, 2009, without traverse.

The amended claims 1, 7, 9, 11 and 12 as follows:

Cancel claim 3.

Claim 1. (Currently Amended) A method of motion compensation in a projection data set of an object of interest performed in conjunction with an imaging system, the method comprising the steps of: selecting a plurality of gating windows, the plurality of gating windows comprising a first gating window comprising first projection data and a second gating window comprising second projection data; estimating a motion of the object of interest on the basis of the projection data of the first and the second gating windows; performing a motion compensated reconstruction on the basis of the motion estimation; wherein the first and second gating windows at least partially overlap on a time axis, wherein the selection of the first gating window and the second gating window comprises the steps of: selecting a first phase point; determining the first gating window comprising first projection data, wherein the first gating window corresponds to the first phase point; selecting a second phase point on the basis of the first phase point; determining a second gating window comprising second projection data, wherein the second gating window corresponds to the second phase point.

Claim 7. (Currently Amended) The method according to claim 3, 1, wherein the second phase point is negatively shifted with respect to the first phase point.

Claim 9. (Currently Amended) A data processing device, comprising: a memory for storing a data set; a data processor for performing motion compensation in a projection data set of an object of interest, wherein the data processor is adapted for performing the following operation: loading the projection data set; selecting a first gating window comprising first projection data and a second gating window comprising second projection data; estimating a motion of the object of interest on the basis of the projection data of the first and second gating windows; performing a motion compensated reconstruction on the basis of the motion

Art Unit: 2624

estimation; wherein the first and second gating windows at least partially overlap on a time axis, wherein the selection of the first gating window and the second gating window comprises the steps of: selecting a first phase point; determining the first gating window comprising first projection data, wherein the first gating window corresponds to the first phase point; selecting a second phase point on the basis of the first phase point; determining a second gating window comprising second projection data, wherein the second gating window corresponds to the second phase point.

Claim 11. (Currently Amended) A CT scanner system, comprising: a memory for storing a data set; a data processor for performing motion compensation in a projection data set of an object of interest, wherein the data processor is adapted for performing the following operation: loading the projection data set acquired by means of a rotating source of electromagnetic radiation generating a beam and by means of a radiation detector detecting the beam; selecting a first gating window comprising first projection data and a second gating window comprising second projection data; estimating a motion of the of the object of interest on the basis of the projection data of the first and second gating windows; performing a motion compensated reconstruction on the basis of the motion estimation; wherein the first and second gating windows at least partially overlap on a time axis, wherein the selection of the first gating window and the second gating window comprises the steps of: selecting a first phase point; determining the first gating window comprising first projection data, wherein the first gating window corresponds to the first phase point; selecting a second phase point on the basis of the first phase point; determining a second gating window comprising second projection data, wherein the second gating window corresponds to the second phase point.

Claim 12. (Currently Amended) A computer program stored on a computer readable medium for performing motion compensation in a projection data set of an object of interest, wherein the computer program causes a processor to perform the following operation when the computer program is executed on the processor: loading the projection data set; selecting a plurality of gating windows, the plurality of gating windows comprising a first gating window comprising first projection data and a second gating window comprising second projection data; estimating a motion of the object of interest on the basis of the projection data of the first and the second gating windows; performing a motion compensated reconstruction on the basis of the motion estimation; wherein the first and second gating windows at least partially overlap on a time axis ,wherein the selection of the first gating window and the second gating window comprises the steps of: selecting a first phase point; determining the first gating window comprising first projection data, wherein the first gating window corresponds to the first phase point; selecting a second phase point on the basis of the first phase point; determining a second gating window comprising second projection data, wherein the second gating window corresponds to the second phase point.

REASONS FOR ALLOWANCE

3. The following is an examiner's statement of reasons for allowance.

This invention relates generally, to the field of image processing in medical applications. In particular, the present invention relates to a method of motion compensation in a projection data set of an object of interest, to data processing devices and to respective computer programs.

Based on applicant's amendment, with respect to claim 1 representative of claims 9, 11 and 12 the closest prior art of record (Stergiopoulos), reference is directed to a method of

tracking organ motion and removing motion artifacts in conventional computer tomography scans is disclosed. Sensor time series indicative of projection measurement data of the object are correlated using a software spatial overlap correlator method in order to obtain a sinogram indicative of organ motion, but does not teach or suggest, among other things, “ selecting a plurality of gating windows, the plurality of gating windows comprising a first gating window comprising first projection data and a second gating window comprising second projection data; estimating a motion of the object of interest on the basis of the projection data of the first and the second gating windows; performing a motion compensated reconstruction on the basis of the motion estimation; wherein the first and second gating windows at least partially overlap on a time axis ,wherein the selection of the first gating window and the second gating window comprises the steps of: selecting a first phase point; determining the first gating window comprising first projection data, wherein the first gating window corresponds to the first phase point; selecting a second phase point on the basis of the first phase point; determining a second gating window comprising second projection data, wherein the second gating window corresponds to the second phase point”.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (571) 272-7443. The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella, can be reached at (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR.

Status information about the PAIR system, see [http:// pair-direct.uspto.gov](http://pair-direct.uspto.gov). Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/SEYED AZARIAN/

Primary Examiner, Art Unit 2624

September 27, 2009